

Title (en)

MOTOR DRIVE DEVICE, REFRIGERATION CYCLE DEVICE, AND AIR CONDITIONER

Title (de)

MOTORANTRIEBSVORRICHTUNG, KÄLTEKREISLAUFVORRICHTUNG UND KLIMAANLAGE

Title (fr)

DISPOSITIF D'ATTAQUE DE MOTEUR, DISPOSITIF À CYCLE DE RÉFRIGÉRATION, ET CLIMATISEUR

Publication

**EP 3264588 A4 20180509 (EN)**

Application

**EP 16854604 A 20160427**

Priority

JP 2016063289 W 20160427

Abstract (en)

[origin: EP3264588A1] A motor drive apparatus includes: inverter modules equivalent in number to phases of a motor 15; and a control unit 5 that generates a PWM signal for driving the inverter modules 2, 3, and 4 by using PWM. Each of the inverter modules 2, 3, and 4 includes: a plurality of pairs of switching elements, each pair of switching elements including two switching elements connected in series; a drive circuit 7 that drives the plurality of pairs of switching elements in accordance with an input signal of the control unit; and a protection circuit 8 that stops the drive circuit 7 when a first threshold voltage value is exceeded regardless of the input signal from the control unit 5. The plurality of pairs of switching elements is connected in parallel, and power GNDs 28 that are reference terminals of the plurality of pairs of switching elements, a control GND 30 that is a reference terminal of the drive circuit 7, and a terminal 26 for overcurrent fault input in the protection circuit 8 are independently exposed to the outside. The power GNDs 28 and the control GND 30 are connected to a single point on a printed circuit board by a wiring pattern.

IPC 8 full level

**H02P 25/16** (2006.01); **F25B 1/00** (2006.01); **H02M 1/32** (2007.01); **H02M 1/44** (2007.01); **H02M 7/00** (2006.01); **H02M 7/5387** (2007.01); **H02P 27/08** (2006.01); **H02M 1/00** (2006.01)

CPC (source: EP US)

**F25B 1/00** (2013.01 - EP US); **H02M 1/32** (2013.01 - EP US); **H02M 1/44** (2013.01 - EP US); **H02M 7/003** (2013.01 - EP US); **H02M 7/48** (2013.01 - EP US); **H02M 7/5387** (2013.01 - EP US); **H02P 25/16** (2013.01 - EP US); **H02P 27/08** (2013.01 - EP US); **H02P 27/085** (2013.01 - US); **H02P 29/027** (2013.01 - US); **H02K 2213/06** (2013.01 - US); **H02M 1/0009** (2021.05 - EP US)

Citation (search report)

- [Y] JP 2013059203 A 20130328 - TOSHIBA CORP, et al
- [Y] EP 2887539 A2 20150624 - VALEO SYSTEMES DE CONTROLE MOTEUR [FR]
- [A] EP 2224587 A1 20100901 - HITACHI LTD [JP]
- [A] EP 1178596 A1 20020206 - MITSUBISHI ELECTRIC CORP [JP]
- [A] EP 1863156 A1 20071205 - MITSUBISHI ELECTRIC CORP [JP]
- See references of WO 2017187576A1

Designated contracting state (EPC)

AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

Designated extension state (EPC)

BA ME

DOCDB simple family (publication)

**EP 3264588 A1 20180103**; **EP 3264588 A4 20180509**; **EP 3264588 B1 20220413**; AU 2016405033 A1 20180823; AU 2016405033 B2 20190725; CN 109247056 A 20190118; CN 109247056 B 20220118; JP 6537712 B2 20190703; JP WO2017187576 A1 20180906; US 11031900 B2 20210608; US 2019280637 A1 20190912; WO 2017187576 A1 20171102

DOCDB simple family (application)

**EP 16854604 A 20160427**; AU 2016405033 A 20160427; CN 201680084458 A 20160427; JP 2016063289 W 20160427; JP 2018514034 A 20160427; US 201616074252 A 20160427